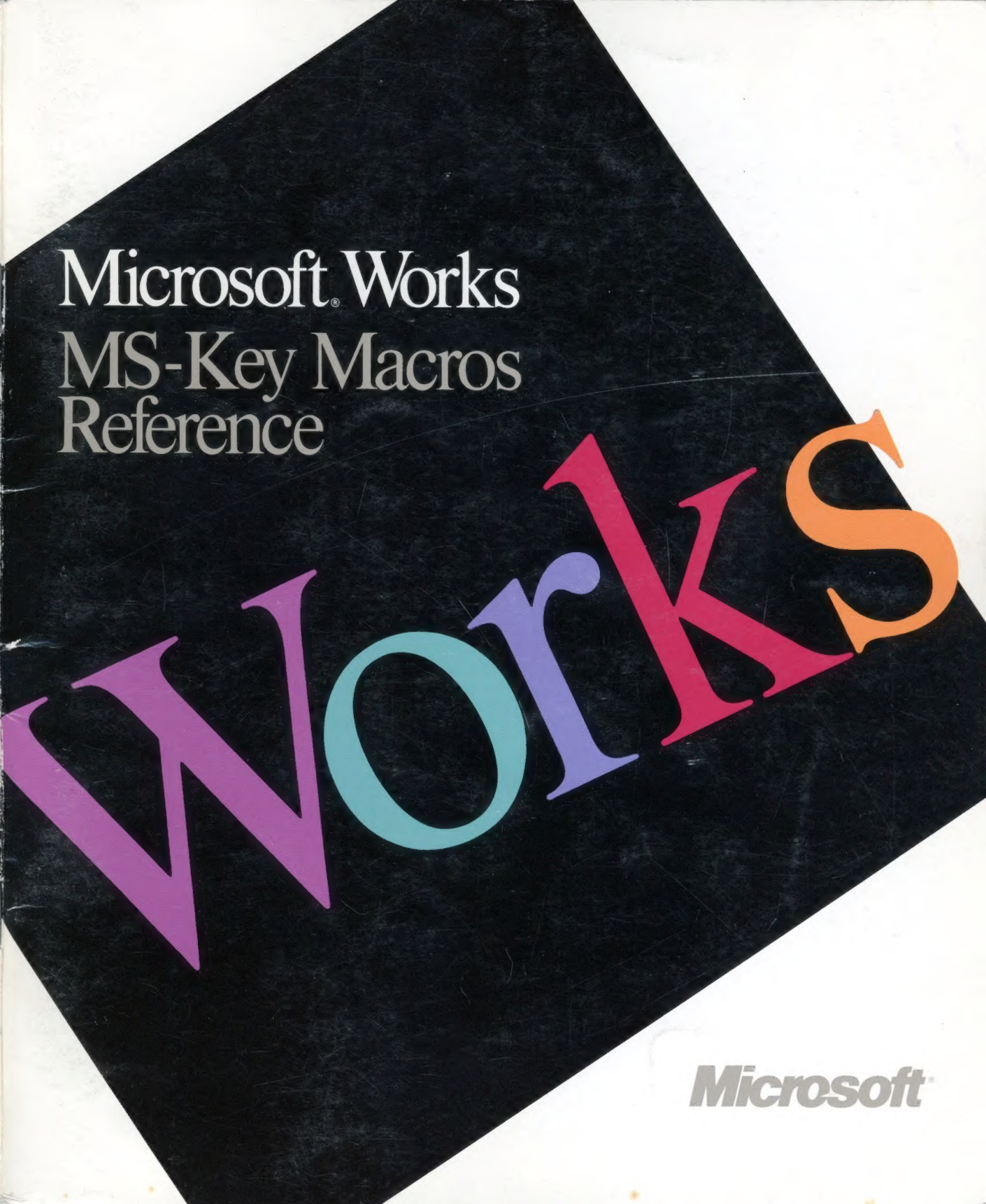
Microsoft® Works MS-Key Macros Reference



Microsoft®

MS-Key Macros Reference

For IBM® Personal Computers and Compatibles
and for the IBM Personal System/2™ Series

Microsoft Corporation

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How To Use This Manual

This manual is designed to teach you how to use MS-Key as well as to serve as a reference source.

Chapter 1, "Introduction to Macros," introduces you to macros and describes how to install MS-Key on your computer.

Chapters 2, 3, and 4 contain lessons that teach you how to use MS-Key. Each chapter should take you about 30 minutes to complete. To understand the lessons, you must follow all the instructions in each chapter in order. You can take a break between chapters if you like.

Chapters 5, 6, and 7 contain reference information on MS-Key's macro editor, shortcut keys, and commands. Refer to these chapters to learn more about MS-Key after you complete the lessons in chapters 2, 3, and 4.

Chapter 8, "Installing and Removing MS-Key," gives detailed information on different ways to install MS-Key. Read chapter 8 after you've learned enough about MS-Key to know when and how you want to use it.

Chapter 9, "Keys, Keynames, and Keywords," lists all the keys to which you can assign macros and all of the keynames and keywords that appear in macro definitions.

The **Index** includes all the special terms, commands, and topics in this manual.

Chapter 1: Introduction to Macros

What's a Macro?

MS-Key is a keystroke macro processor designed to work with Microsoft Works.

Macros are long sequences of commands, text, numbers—in fact anything that you can type. With MS-Key, you assign macros to single keys on your keyboard. When you press a key that has a macro assigned to it, MS-Key automatically types the entire macro for you.

MS-Key lets you eliminate repetitive typing and automate complex tasks, saving you time and avoiding errors. With a single keystroke you can type boilerplate text or format paragraphs in the word processor, or enter complex formulas in the spreadsheet. You can even have a macro get stock prices using communications, copy the prices to the spreadsheet, create a chart and insert it into the word processor, and print a monthly report, all with a single keystroke.

MS-Key macros can be anywhere from one to several thousand keystrokes long, and you can have hundreds of different macros assigned to the different keys on your keyboard at one time. The different macros are saved as a set in a single file. MS-Key lets you switch back and forth between different macro files whenever you wish. For example, you can use one set of macros while you're working in the word processor and another set when you're in the spreadsheet.

How Does MS-Key Work?

MS-Key works like a translator between your keyboard and the program you are running, Microsoft Works. Everything you type passes through MS-Key before going to Works. When you press a key to which you've assigned a macro, MS-Key replaces the key with the sequence of keystrokes in the macro. Works receives the entire sequence, though you only pressed one key. For example, if you assigned your name to the function key F10, whenever you typed F10, MS-Key would type your name.

MS-Key gives you several different ways of creating macros, including "recording." When you record a macro, you type keystrokes in Works. While Works executes the keystrokes, entering text and numbers and carrying out commands, MS-Key records the keystrokes as a macro.

Note MS-Key is designed to be used with Works. You can not use macros when you're at the DOS prompt or in other programs besides Works. You can create macros only while you're in Works.

Installing MS-Key

The MS-Key program is contained in the file MSKEY.COM on the Works Setup/Utilities disk. Before you can use MS-Key, you must copy MSKEY.COM to the appropriate disk. Then you install MS-Key in memory by running the MSKEY.COM program. You must install MS-Key **before** you start Works.

To copy MSKEY.COM to your DOS disk

If your computer has only floppy disk drives, you should copy MSKEY.COM to your DOS disk, the disk containing the operating system. If you have a hard disk drive, your "DOS disk" is the C:\ directory on your hard disk.

When you run the Works Setup program to create a working copy of the Works program on a floppy or hard disk, it asks you if you want to copy MS-Key to your DOS disk. If you've already run Setup and answered Yes, you should already have MS-Key on your DOS disk. If you answered No, you can still use the Setup program to copy MS-Key.

- Start the Setup program as described in the Microsoft Works Reference manual.
- Choose the Modify option instead of the Create option.
- Choose the Copy MS-Key option.

To install MS-Key in memory

You install MS-Key in memory by running the MSKEY.COM program.

- Start your computer
- When the DOS prompt appears, type **mskey** and press **Enter**

Installing MS-Key takes up about 50K of your computer's memory. MS-Key remains in memory until you turn off your computer.

That's all there is to it. Now you can start Works as you normally would.

Note You can install MS-Key in several different ways, depending on how much memory your computer has, whether it has a hard disk drive, and how often you use MS-Key. After you've learned more about MS-Key, and know when and how you want to use it, read Chapter 8, "Installing and Removing MS-Key."

This chapter introduces MS-Key. It teaches you how to create macros, and how to view, change, and delete them. It also explains how to save your macros in files for later use and how to restore them to your computer's memory so you can use them again.

Important Before you begin, make sure you've installed MS-Key as described under "Installing MS-Key" in Chapter 1. Then start Works. To follow the instructions in this chapter, you must have an open word processing file and an open spreadsheet file in Works. It should take you about 30 minutes to complete all the instructions in this chapter in order.

Keynames

In this manual, special names are used for certain keystrokes and key combinations. These names, called "keynames," appear between angle brackets: < and >. When you encounter these keynames, press the key or key combination that's been named—**do not type the keyname literally**.

Here are a few examples:

<enter>	Press the Enter key
<f6>	Press the function key F6
<bks>	Press the Backspace key
<rgt>	Press the right arrow key
<ctrla>	Hold down the Ctrl key and press the letter A
<alt/>	Hold down the Alt key and press the / key
<capsf6>	Hold down either Shift key and press the function key F6
<ctrlesc>	Hold down the Ctrl key and press the Esc key

For a complete list of keynames, see Chapter 9, "Keys, Keynames, and Keywords."

Choosing Commands and Creating Macros

You create macros and macro files using the commands in MS-Key's menus. You choose commands in MS-Key much as you do in Works. The difference is that you press <alt/> to activate MS-Key's menus instead of <alt>, which activates Works' menus. Let's create a simple macro using the Edit command in MS-Key's Macro menu.

- Make the word processing file the active file in Works
- Press **<alt/>**

MS-Key's main menus are displayed at the top of the screen with the Macro menu highlighted.

- Press **M**, the first letter of Macro

This opens the Macro menu.

- Press **E**, the first letter of Edit

This chooses the Edit command. MS-Key asks you what key to assign the macro to.

- Press **<f9>**

MS-Key displays the editing window and editing menus.

- Type your first and last name

The characters you type are the ones you want MS-Key to type for you automatically when you press <f9>. To tell MS-Key that you are done defining the macro, you use the End command.

- Press **<alt/>** to activate the menus
- Press **M** to open the Macro menu
- Press **E** to choose the End command

MS-Key returns you to the main menus. To leave the menus and return to Works

- Press **<esc>**

Playing Back Macros

Let's play back the macro you've just created.

- Press **<f9>**

MS-Key types your name in the word processing file.

- Press **<f9>** again

There's no space after the last name because you didn't put one in when you made the macro. Let's do that now.

Viewing and Editing Macros

You can change an existing macro at any time using MS-Key's editor.

This time you'll use the arrow and <enter> key method rather than the first-letter method to choose the Edit command.

- Press <**alt/**>
- Press <**enter**>

This opens the Macro menu. To open another menu, you would press the right or left arrow key to highlight the menu, then press <enter>.

- Press the down arrow key to highlight the Edit command

Notice that the prompt line at the bottom of the screen gives a brief description of the highlighted command.

- Press <**enter**> to choose the highlighted command
- Press <**f9**>

Pressing <del> deletes the character under the cursor.

- Press <**del**> enough times to delete your first name

You can also use the backspace key, <bks>, to delete the character to the left of the cursor. There are several keys that move the cursor, including the arrow keys.

- Press <**end**> to move the cursor to the end of the line
- Press the space bar to add a space after your last name

Again, we'll use the arrow and <enter> key method to choose the End command.

- Press <**alt/**>
- Press <**enter**>
- Press <**enter**>

Note If you didn't want to change your macro but only to look at its definition in the editor, you would choose the Cancel command instead of the End command.

- Press <**esc**> to return to Works

Let's see what <f9> does now.

- Press <**f9**> twice

There should be a space after your last name.

Let's make one more macro.

- Press <**alt/**> **M E** to choose the Edit command
- Press <**f10**> to assign the macro to that key
- Type

  your address<**enter**>
  city, state zip<**enter**>

- Press <**alt-**> to choose the End command

This time you used a shortcut key to choose the End command. Several commands in the Macro menu have shortcut keys that let you choose the commands with a single keystroke. (All of the shortcut keys are listed in Chapter 6, "Shortcut Keys.")

- Press <**esc**> to return to Works
- Press <**enter**>
- Press <**f10**> to play the macro

Note You've now learned three different ways to choose commands: the first-letter method, the arrow and <enter> key method, and the shortcut key method. From now on, the instructions tell you only what commands to choose from what menus. You can use whichever method of doing so that you prefer.

SUMMARY

To create a macro using the editor

- Press <alt/> and choose the Edit command from the Macro menu
- Press the key whose macro you want to define
- Type the definition
- Press <alt/> and choose the End command from the Macro menu
- Choose another command or press <esc> to return to Works

To view a macro in the editor

- Press <alt/> and choose the Edit command from the Macro menu
- Press the key whose macro you want to view
- When you're finished viewing the macro, press <alt/> and choose the Cancel command from the Macro menu

MS-Key asks you if it is OK to cancel your edits.

- Press Y
- Choose another command or press <esc> to return to Works

To change a macro in the editor

- Press <alt/> and choose the Edit command from the Macro menu
- Press the key whose macro you want to change
- Make your changes
- Press <alt/> and choose the End command from the Macro menu to save the changes
- Choose another command or press <esc> to return to Works

To cancel changes made in the editor

- Press <alt/> and choose the Cancel command from the Macro menu to save the changes

MS-Key asks you if it is OK to cancel your edits.

- Press Y

Writing Macros to a File

The macros you've just made are currently in your computer's memory. If you were to turn the computer off, they would be lost. To save your macros for use later on, you must write them to a file on disk. Let's do that now.

- Press **<alt/>** and choose the Save command from the File menu

MS-Key asks you to type the name of the file in which to save the macros.

- Type **sample.key**
- Press <**enter**>

This tells MS-Key to accept the file name and returns you to the main menus. You've just created a file on disk called SAMPLE.KEY.

Note MS-Key saves the file in whichever drive or directory is current in Works. To save a file in a different drive or directory, type the drive or directory before the filename, for example C:▮ MACROS▮ SAMPLE.KEY.

Clearing Macros from Memory

Macros don't disappear from memory when you save them in a file. Right now, the macros are still in memory as well as on disk. <f9> and <f10> are still defined as your last name and address, and are still available for playback. Press <f9> or <f10> to make sure.

To clear MS-Key's memory means to erase any macros that are currently present in memory. Let's do that now.

- Press <**alt/**> and choose the Clear command from the File menu
- If MS-Key asks you if it is OK to clear your macros, press **Y**
- Press <**esc**> to return to Works

Now press <f9> and you'll see that nothing happens. The macro is gone from memory. So is <f10>. When you clear MS-Key's memory, all the keys that had macros assigned to them return to their original meanings. But because you've saved the macros in a file you can restore them at any time by reading the file back into MS-Key's memory.

Viewing a Macro File in Works

Let's see what your macro file looks like by opening it in Works.

- Press <**alt**> to activate the Works menus
- From the File menu, choose the Open command
- Type **sample.key** and press <**enter**>

Works asks you what tool you want to open the file with.

- Press <**enter**> to choose the word processor

When Works opens the file, it should look like this:

```
*
<begdef><f9>your last name <enddef>
*
<begdef><f10>your address<enter>
city, state  zip<enter>
<enddef>
*
```

<begdef> and <enddef> stand for begin and end definition. <f9> is the keyname of the first macro you defined and your last name is the definition. <f10> is the keyname of the second macro. You can store an unlimited number of macros in a single file.

When you're done looking at the macros in Works, you should close the SAMPLE.KEY word processing file.

- Press <**alt**> to activate the Works menus
- From the File menu, choose the Close command
- If Works asks you to save any changes to the file before closing it, choose No
- Make the previous word processing file the active file in Works if it isn't already

Reading a Macro File into Memory

Now we'll use the Open command to restore the macros to memory.

- Press <**alt/**> and choose the Open command from the File

MS-Key asks you to type the name of the file to open.

- Type **sample.key** and press <**enter**>
- Press <**esc**> to return to Works

You've restored the macros in SAMPLE.KEY to memory and can play them again. If you press <f9>, it types your last name.

SUMMARY

To save macros in a file on disk

- Press <alt/> and choose the Save command from the File menu
- Type a filename (or accept the proposed filename)
- Press <enter>

To open macros from a file on disk

- Press <alt/> and choose the Open command from the File menu
- Type the filename (or accept the proposed filename)
- Press <enter>

To clear macros from memory

- Press <alt/> and choose the Clear command from the File menu
- If MS-Key asks you if it is OK to clear your macros, Press Y

Listing Macros and Macro Titles

MS-Key's List command lets you view the keys that currently have macros assigned to them along with a description of what each key does. Your SAMPLE.KEY file has only two macros in it, but MS-Key macro files can contain hundreds of macros. The List command helps you keep them straight.

- Press <**alt/**> and choose the List command from the File menu

MS-Key displays a list of all the macros currently in memory. There are only two in memory now, but if there were more, you could use the <pgdn> and <pgup> keys to see all of them.

- Press <**esc**> to leave the list

You can attach a descriptive title to a macro. This title is then displayed in the List command. With titles, you can turn the List command into a help facility.

- Choose the Title command from the Macro menu
- Press <**f10**> to attach a title to that key

MS-Key asks you to type the title of the macro.

- Type **my address** and press <**enter**>
- Choose the List command from the File menu

Now, next to <f10>, is the title "my address".

- Press <**esc**> to leave the list
- Press <**esc**> to return to Works

Deleting Macros

Instead of clearing all macros from memory with the Clear command, you can clear individual macros with the Delete command. When you delete the macro assigned to a key, the key returns to its original meaning. Let's delete the <f9> macro.

- Press <**alt/**> and choose the Delete command from the Macro menu

MS-Key asks you which macro to delete.

- Press <**f9**>

MS-Key deletes the <f9> macro from memory. To be sure, let's look at the list of all macros in memory.

- Choose the List command from the File menu

Only <f10> is listed.

- Press <**esc**> to leave the list
- Press <**esc**> to return to Works

Chapter 3: Recording Macros and Fill-in Fields

This chapter describes how to create macros interactively, by recording them as you type. It also introduces fill-in fields, a powerful MS-Key feature that lets you make your macros more "intelligent."

Important Before you begin, make sure you've installed MS-Key as described under "Installing MS-Key" in Chapter 1. Then start Works. To follow the instructions in this chapter, you must have an open word processing file and an open spreadsheet file in Works. If you are continuing from the previous chapter, you will already have these files open. It should take you about 30 minutes to complete all the instructions in this chapter in order.

Recording Macros Interactively

It's often much easier to create a macro when you get feedback from the underlying program that's going to eventually receive the macro. When you record a macro, you type the definition in Works. MS-Key records your keystrokes, just as in the MS-Key editor, but Works executes those keystrokes as well, as if MS-Key weren't there. You can see exactly what you've done and what to do next.

Note If you are using a mouse with Works, MS-Key can record only your keystrokes, not your mouse actions. When you choose Works commands during recording, use the keyboard, not the mouse.

A common but lengthy spreadsheet task is to enter a row of months as column labels. Let's record a macro that enters the first six months of the year. Try to follow the instructions exactly, but if you make a mistake in Works, go ahead and make whatever correction you would normally make in Works. MS-Key will record the correction as well as the mistake.

- Make the spreadsheet file the active file in Works
- Press **<alt/>** and choose the Record command from the Macro menu

MS-Key asks you what key to assign the macro to.

- Press **<ctrlm>**

MS-Key takes down the menus and returns you to Works. You've just started recording. From now on, everything you type is executed by Works and recorded by MS-Key.

- Press **<f8>**
- Press the right arrow key 5 times

This selects a row of six cells.

- Press <**alt**> to activate the Works menus
- From the Format menu, choose the Time/Date command
- Under Show, choose the Month Only option
- Press <**enter**> to carry out the Time/Date command
- Type **January 1** and press <**enter**>
- Press <**esc**>
- Press = to start a formula
- Press the left arrow key then type **+31**
- Press <**enter**> to enter the formula
- Press <**f8**> and then the right arrow key 4 times
- Press <**alt**> to activate the Works menus
- From the Edit menu, choose the Fill Right command
- Press the left arrow key once

You now have the months Jan through Jun entered in your spreadsheet and MS-Key has recorded your actions. Use the End command to save the macro.

- Press <**alt/**> and choose the End command from the Macro menu

Now let's play the macro.

- Move the spreadsheet selection to another row
- Press <**ctrlm**>

MS-Key enters the months Jan through Jun in your spreadsheet.

Changing Recorded Macros

After you've recorded a macro, you can view and edit it in MS-Key's editor. Let's change the macro so that it enters the last six months of the year instead of the first six.

- Press <**alt/**> and choose the Edit command from the Macro menu
- Press <**ctrlm**>
- Replace the January with July, using the arrow keys to move the cursor and <**del**> to delete characters
- Press <**alt/**> and choose the End command from the Macro menu
- Press <**esc**> to return to Works

Now let's play the edited macro.

- Move the spreadsheet selection to another row
- Press <**ctrlm**>

MS-Key enters the months Jul through Dec in your spreadsheet.

Fill-in-the-Blank Fields

The <ctrlm> macro enters six months starting always from the same month. At first the starting month was January and you changed it to July. Suppose that each month you wanted to use the macro to produce a forecast for the next six-months. Each month you could edit the macro and change the starting date, but that would be very time-consuming.

Instead, you can have the macro ask you what month to start with, using a "fill-in-the-blank" field. With fields, you can enter unique information each time you play the macro. During playback, the macro will pause for you to fill in the unique information, such as the starting month. When you're done, the macro continues.

MS-Key has two kinds of fields, variable length fields and fixed length fields. In variable fields you can type any number of keystrokes to fill in the field, while in fixed fields the information you type must always be the same number of keystrokes. (MS-Key has another feature similar to fill-in fields called "nested" macros. For more information, see "Nesting Macros" in Chapter 4.)

Variable Length Fields

Let's use the editor to make the <ctrlm> macro ask what month to start with. We want the macro to playback normally until the point where it would type in the month. There it should wait for you to type in whatever month you want. When you've specified the month, the macro should continue automatically.

- Press <**alt**/> and choose the Edit command from the Macro menu
- Press <**ctrlm**>
- Move the cursor to the J in July.
- Press <**del**> 4 times to delete July
- Press <**alt**/> and choose the Vfld command from the Macro menu

MS-Key inserts the command <vfld> into the definition.

- Press <**alt**/> and choose the End command from the Macro menu
- Press <**esc**> to return to Works

Now play the macro back.

- Move the spreadsheet selection to another row
- Press <**ctrlm**>

When MS-Key encounters the <vfld> command in the macro definition, it pauses for you to type in the starting month.

- Type **March** and press <**enter**>

MS-Key continues with the macro, entering the months Mar through Aug. Move the selection and play the macro again, using a different starting month.

You've created a macro with a variable field using the Vfld command in the editor. You can use the Vfld command during recording as well.

SUMMARY

To create a variable field during editing

- Press <alt/> and choose the Vfld command from the Macro menu

To create a variable field during recording

- Press <alt/> and choose the Vfld command from the Macro menu
- Type the unique information

The keystrokes you type are not recorded by MS-Key because you will type in different information each time you play the macro back.

- Press <enter> to end the field

You can also choose the Vfld command again to end the field, but pressing <enter> is quicker.

To fill in a variable field during playback

- When MS-Key pauses, type the unique information and press <enter>

Fixed Length Fields

When you are filling in a variable length field, you can type any number of keystrokes. MS-Key doesn't know how many you're going to type so you have to tell it that you're done by pressing <enter>. If the unique information you fill in is always the same number of keystrokes, you can use a fixed field instead of a variable field.

In a fixed field, MS-Key pauses for you to type a specific number of keystrokes. As soon as you've typed that number, MS-Key automatically continues with the rest of the macro, without you having to press <enter>.

In the <ctrlm> macro, you've been typing the full name of the starting month even though you really only need to type the first three letters. To make the macro faster, let's change the variable field to a fixed field three keystrokes long. Then, when you play the macro back, all you have to do is type in the abbreviation without the <enter>.

- Press <**alt/**> and choose the Edit command from the Macro menu
- Press <**ctrlm**>
- Move the cursor to <vfld> and press <**del**>

Notice that pressing <del> deletes the entire <vfld> command.

- Press <**alt/**> and choose the Ffld command from the Macro menu

MS-Key asks you to specify the length of the field.

- Type **3** and press <**enter**>

MS-Key inserts the command <ffld 3> into the definition.

- Press <**alt/**> and choose the End command from the Macro menu
- Press <**esc**> to return to Works

Now play the macro back.

- Move the spreadsheet selection to another row
- Press <**ctrlm**>

When MS-Key encounters the <ffld 3> command in the macro definitions, it pauses for you to type in the starting month.

- Type **Oct**

MS-Key automatically continues with the macro, entering the months Oct through Mar. Move the selection and play the macro again, using a different starting month.

You can insert a fixed field in a macro during recording as well as editing, again using the Ffld command.

SUMMARY

To create a fixed field during editing

- Press <alt/> and choose the Ffld command from the Macro menu
- Type a number for the length of the field and press <enter>

To create a fixed field during recording

- Press <alt/> and choose the Ffld command from the Macro menu
- Type the unique information

The keystrokes you type are not recorded by MS-Key because you will type in different information each time you play the macro back. However, MS-Key does record the number of keystrokes you typed as this determines the length of the fixed field.

- Press <alt/> and choose the Ffld command again to end the field

To fill in a fixed field during playback

- When MS-Key pauses, type the unique information

As soon as you've typed the specified number of keystrokes, MS-Key continues with the macro.

Chapter 4: Advanced Macro Features

This chapter describes some more advanced macro features such as looping, pauses, and nested macros.

Important Before you begin, make sure you've installed MS-Key as described under "Installing MS-Key" in Chapter 1. Then start Works. To follow the instructions in this chapter, you must have an open word processing file and an open spreadsheet file in Works. If you are continuing from the previous chapter, you will already have these files open. It should take you about 30 minutes to complete all the instructions in this chapter in order.

Skipping Macros

Works uses the function keys as well as Ctrl and Alt shifted keys for its own commands. If you assign a macro to one of these keys, pressing the key plays back the macro assigned to it, not the Works command. Occasionally you might want the key to ignore the macro assigned to it and have its original meaning instead. You can temporarily give a key its original meaning with the Skip command or the Skip shortcut key, <`>.

Note The Skip shortcut key is no different than any other shortcut key, but it is used so often that you'll want to remember it.

Let's record a simple macro and assign it to <f5>, which is the Go To key in Works.

- Make the spreadsheet file the active file in Works
- Press <**f5**>

Because there is no macro assigned to <f5> yet, it has its original meaning and displays the Go To dialog box.

- Press <**esc**> to cancel the dialog box
- Press <**alt/**> and choose the Record command from the Macro menu
- Press <**f5**>
- Type **Hello!** and press <**enter**>
- Press <**alt/**> and choose the End command from the Macro menu
- Press <**f5**>

MS-Key plays the macro assigned to it. It you want <f5> to have its original meaning, use the Skip key.

- Move the spreadsheet selection to another cell
- Press <`> then <**f5**>
- Press <**esc**> to cancel the dialog box

The Skip key applies only to the next key pressed, not to any keystrokes thereafter. So if you pressed <f5> again, MS-Key would play its macro.

Note You can suspend all macro definitions in MS-Key with the Active command from the Options menu. When you choose Active, you turn MS-Key "off". Unlike the Skip key, the Active command applies to all keys until you turn MS-Key back on. For more information, see "Active Command" in Chapter 7.

You also use the Skip key in the MS-Key editor to insert the keynames of editing keys into a macro definition. Let's change the <f5> macro so that it moves the spreadsheet selection one cell to the right after entering "Hello!".

- Press <**alt**/> and choose the Edit command from the Macro menu
- Press <**f5**>

We want to insert the right arrow keyname, <rgt>, into the macro definition.

- Press the right arrow key, <**rgt**>, a few times

Pressing <rgt> just moves the cursor. To insert the keyname <rgt> you use the Skip key.

- Press <**end**> to move the cursor to the end of the line
- Press <`> and then <**rgt**>

MS-Key inserts the keyname into the definition.

- Press <**alt**/> and choose the End command from the Macro menu
- Press <**esc**> to return to Works
- Press <**f5**>.

Swapping Keys

Among other things, the Skip key is used to swap keys on the keyboard. For example, if you type colons much more often than semi-colons, you can swap the <:> and <;> keys.

Let's record the macro for the semi-colon first.

- Make the word processing file the active file in Works
- Press <**alt**/> and choose the Record command from the Macro menu
- Press <;>

Because the semi-colon is a common key, MS-Key asks you if it is OK to assign a macro to it.

- Press **Y**
- Press <`> then <:>
- Press <**alt**/> and choose the End command from the Macro menu

Now let's create the macro for the colon. This time we'll use the editor, instead of recording, so we can see what the Skip command looks like in a macro definition.

- Press <**alt**/> and choose the Edit command from the Macro menu
- Press <:>
- Press <`>

Remember that when you press <`> in the editor, MS-Key waits for you to type another key.

- Press <`> again

MS-Key inserts the command <skip> into the definition.

- Press <;>
- Press <**alt**/> and choose the End command from the Macro menu
- Press <**esc**> to return to Works

Now press the <:> and <;> keys a few times. The keys have been swapped.

If you didn't have <skip> in the macro definitions, you would have an endlessly looping macro. The semi-colon would have the macro definition <:>, so pressing <;> would play <:>. But the colon would have the definition <;>, so pressing <:> would play <;> which would in turn play <:> again, and so on. Having <skip> in the definition tells MS-Key to play the original meanings of colon and semi-colon, skipping the macros assigned to them.

SUMMARY

To skip a macro and use the original meaning of a key

- Press <`> and then another key.

To insert the keyname of an editing key during editing

- Press <`> and then the editing key such as right arrow

To insert <skip> in a macro during editing

- Press <`> twice and then another key

To insert <skip> in a macro during recording

- Press <`> and then another key

To suspend all macros

- Press <alt/> and choose the Active command from the Options menu

Choose the Active command again to turn macros back on.

Macros That Play Other Macros

Macro definitions can contain the keynames of other macros. When you play a macro, if MS-Key comes across the keyname of another macro, MS-Key plays that macro. When it is finished, it continues with the first macro. Let's make a few macros and then link them together in a new macro.

- Press <**alt/**> and choose the Edit command from the Macro menu
- Press <**ctrlx**>
- Type **Hello** followed by a space
- Press <**alt/**> and choose the End command from the Macro menu
- Choose the Edit command from the Macro menu
- Press <**ctrly**> then type **my name is** followed by a space
- Press <**alt/**> and choose the End command from the Macro menu
- Choose the Edit command from the Macro menu
- Press <**ctrlz**> then type **David.** and press <**enter**>
- Press <**alt/**> and choose the End command from the Macro menu
- Press <**esc**> to return to Works

Play each of the macros in turn.

- Press <**ctrlx**> then <**ctrly**> then <**ctrlz**>

Now let's create another macro that plays all three of these macros.

- Press <**alt/**> and choose the Edit command from the Macro menu
- Press <**ctrla**>
- Press <**ctrlx**><**ctrly**><**ctrlz**>
- Press <**alt/**> and choose the End command from the Macro menu
- Press <**esc**> to return to Works
- Press <**ctrla**> to play the macro back

You'll see

Hello my name is David.

The <ctrla> macro is a combination of three other macros. Any macro can contain the keynames of one or more other macros as well as other keynames and commands.

You can use macros inside other macros as "subroutines". Suppose several different macros all contain the same sequence of keystrokes, like your address, somewhere inside their definitions. If you assign just this sequence of characters to another keyname, you can replace the sequences in the other macros with the single keyname. If you edit the macro assigned to the keyname, all other macros containing that keyname automatically use the new definition.

Nesting Macros

Macros can be defined or "nested" within other macros. This allows a macro to ask you for information while it is playing and then use that information again later on. Let's use the editor to create a macro that asks you for your name and then uses the name in a statement.

- Press <**alt/**> and choose the Edit command from the Macro menu
- Press <**ctrln**>
- Type **What is your name?** followed by a space
- Press <**alt/**> and choose the Nest command from the Macro menu

MS-Key asks you what key to assign the nested macro to.

- Press <**ctrlo**>

MS-Key inserts the command <nest ctrlo> into the definition.

- Press <**enter**> and type **Hello** followed by a space
- Press <**ctrlo**> followed by a space
- Type **and welcome to the world of macros.** and press <**enter**>
- Press <**alt/**> and choose the End command from the Macro menu
- Press <**esc**> to return to Works
- Press <**ctrln**> to play back the macro

The macro types

What is your name?

At this point, MS-Key pauses and waits for you to type your name. The keystrokes you type become the definition of <ctrlo>.

- Type your name and press <**enter**>

Now, whenever <ctrlo> is used some place in the macro definition, for example after the "Hello," MS-Key types your name:

Hello David and welcome to the world of macros.

Try playing this back a few times, filling in a different name each time.

SUMMARY

To create a nested macro during editing

- Press <alt/> and choose the Nest command from the Macro menu
- Press the key to which you want to assign the nested macro.

To create a nested macro during recording

- Press <alt/> and choose the Nest command from the Macro menu
- Press the key to which you want to assign the nested macro.
- Type the definition of the nested macro

The keystrokes you type are not recorded by MS-Key because you will type in different information each time you play the macro back.

- Press <enter> to end the nested macro definition

You can also choose the Nest command again to end the macro, but pressing <enter> is quicker.

To define a nested macro during playback

- When MS-Key pauses, type the definition and press <enter>

Pauses

Pauses let you control the timing of a macro. Pauses tell MS-Key to wait during macro playback for a specified period of time, from a tenth of a second up to several days. A pause can be placed anywhere in a macro. When MS-Key encounters a pause, it waits at that point for the specified period of time. When the time is up, MS-Key continues with the macro. If you press any key before the time is up, MS-Key cancels the pause and continues with the macro.

Let's use the editor to create a simple macro with a 5 second pause in it.

- Press <**alt/**> and choose the Edit command from the Macro menu
- Press <**ctrlp**>
- Type **This macro will now pause** followed by a space
- Press <**alt/**> and choose the Pause command from the Macro menu

MS-Key asks you how long to wait for.

- Type **5** and press <**enter**>

MS-Key inserts the command <pause 5> into the definition.

- Type **for 5 seconds.**
- Press <**alt/**> and choose the End command from the Macro menu
- Press <**esc**> to return to Works
- Press <**ctrlp**> to play the macro back

SUMMARY

To create a pause during editing or recording

- Press <alt/> and choose the Pause command from the Macro menu
- Type the length of time to wait and press <enter>

To end a pause early during playback

- When MS-Key pauses, press any key

Looping Macros

You can create a looping macro that keeps repeating itself until you tell it to stop. For example, suppose you want to set several columns in the spreadsheet to have different widths. Let's create a looping macro that asks you for the width of the first column, then the second column, and so on until you tell it to stop.

- Make the spreadsheet file the active file in Works
- Press <**alt**/> and choose the Record command from the Macro menu
- Press <**ctrlw**>
- Press <**alt**> to activate the Works menus
- From the Format menu, choose the Width command

Works displays the Width dialog box.

- Press <**alt**/> and choose the Vfld command from the Macro menu to begin a variable field
- Type **15**
- Press <**enter**> to end the variable field
- Press <**enter**> to carry out the Width command
- Press the right arrow key to select the next column
- Press <**alt**/> and choose the End command from the macro menu

Inserting the keyname of the macro in its own definition will cause it to loop.

- Press <**alt/**> and choose the Edit command from the Macro menu
- Press <**ctrlw**>
- Move the cursor to the end of the definition
- Press <**ctrlw**>
- Press <**alt/**> and choose the End command from the Macro menu
- Press <**esc**> to return to Works

Now play the macro back.

- Move the spreadsheet selection to another column
- Press <**ctrlw**>

At the first column, MS-Key pauses for you to specify the width of the column.

- Type a number and press <**enter**>

When MS-Key reaches the end of the macro, it encounters the <ctrlw> and loops back to the beginning. At each successive column, MS-Key pauses for you to specify another width.

- After you've entered several widths, press <**ctrlesc**> to cancel the macro

The cancelled macro leaves you in the Width dialog box.

- Press <**esc**> to cancel the dialog box

Any macro can be made into a loop by ending the macro definition with its own keyname. MS-Key will play the loop over and over again until you stop it by pressing <ctrlesc>, the Cancel key.

SUMMARY

To stop a looping macro

- Press <ctrlesc>

This chapter contains more information on editing macros with the MS-Key editor and editing macro files in a word processor.

The MS-Key Editor

You can use the MS-Key editor to create new macros or to change the definitions of macros that you've already created. When you record a macro, MS-Key passes your keystrokes on to Works. But in the editor, Works is suspended and does not receive your keystrokes.

Whenever you press a key in the editor, its name is inserted in the macro definition to the left of the cursor. A few editing keys have been provided to let you move the cursor around the screen and make changes to your macros. These are:

<lft> (left arrow)	move left one character
<rgt> (right arrow)	move right one character
<up> (up arrow)	move up one line
<dn> (down arrow)	move down one line
<home>	move to beginning of line
<end>	move to end of line
<pgup>	move to previous screen
<pgdn>	move to next screen
<bks> (backspace)	delete character to left of cursor
<del>	delete character the cursor is on
<ins>	switch between insert and overtype modes

When you move the cursor around or delete characters, keynames are treated as indivisible units. For example, if the cursor is on the left bracket of the keyname <alta>, and you press <del>, the entire keyname <alta> is deleted. If you press the right arrow, the cursor will move to the first character after the right bracket of <alta>.

To enter the name of an editing key into a macro definition, first press <`>, then press the editing key. For example, to move the cursor to the end of a line, press <end>, but to insert the keyname <end> into a macro, press <`> then <end>.

The editor is initially in insert mode. When you type a key, its name is inserted in the macro definition to the left of the cursor. Everything to the right of the cursor is pushed forward. If you press <ins>, MS-Key switches to overtype mode. When you type a key, its name replaces the keyname the cursor is on. To return to insert mode, press <ins> again.

If you want to assign a new macro to a key that already has a macro, you can erase the current definition. To erase the current definition in the editor, choose the Blank command from the Macro menu.

While you are in the editor, you can use commands in the Macro and File menus to insert special commands into the macro definition. For information on how to insert commands into a macro, see Chapter 7, "MS-Key Command Summary."

SUMMARY

To save an edited macro

- Press <alt/> and choose the End command from the Macro menu

To cancel changes to an edited macro

- Press <alt/> and choose the Cancel command from the Macro menu

MS-Key asks if it is OK to cancel your edits.

- Press Y

To erase the definition in the editing window

- Press <alt/> and choose the Blank command from the Macro menu

MS-Key asks if it is OK to erase the definition

- Press Y

To switch between insert and overtype modes

- Press <ins>

Editing Macro Files in Works

When you save MS-Key macros to a file on disk, they are saved as a standard text (ASCII) file. You can open and edit the text file in the Works word processor. Any editing you can do in the word processor can also be done with in MS-Key's editor. However, there are times when you want to be able to take advantage of the more powerful features of the word processor. With the word processor, you can easily edit several macros at once, copying, moving, and deleting entire definitions.

To edit a macro file in Works, you follow these general steps.

- Use the Open command from the Works File menu to open the macro file in the word processor.
- Edit the macro definitions.
- Use the Save As command from the Works File menu to save the macro file. Make sure you save it in Text format.
- Use the Close command from Works File menu to close the macro file.

You edit the macro definitions in a macro file just as you do any text in Works. Remember that Works is not the MS-Key editor; when you type keys in Works, it does not insert the keynames of those keys into the macro file. **To insert keynames, you have to type them one character at a time, including the angle brackets,** exactly as they appear in Chapter 9, "Keys, Keynames, and Keywords." For example, you must type the six characters < a l t a > to insert the keyname <alta>.

Below is an example of an MS-Key macro file, with two macro definitions assigned to the keys <ctrlc> and <ctrln>.

```
*standard letter closing
<begdef><ctrlc>Yours truly,<enter>
<enter>
<enter>
Jack Smith<enter>
President<enter>
*
<begdef><ctrln>What is your name? <nest ctrlo><enter>
Hello <ctrlo> and welcome to the wonderful world of macros.
<enddef>
*
```

<begdef> and <enddef> stand for begin and end definition. Each macro definition is preceded by a line with an asterisk. If a macro has a title, it follows the asterisk. In the example above, the first macro has the title "standard letter closing". Following the <begdef> is the name of the key to which the macro is assigned.

Note The keyname after the <begdef> must be enclosed in angle brackets even if it has a one character representation like the letter A or the character =

Each <enter> in a macro definition produces a carriage return in the resulting macro file. MS-Key inserts these for legibility when you save a macro file, but they are not required.

SUMMARY

To open a macro file in Works

- Press <alt> to activate the Works menus
- From the File menu, choose the Open command
- Type the name of the file to open, or select it from the "Files in" list box
- Press <enter>

Works asks you what tool you want to open the file with.

- Press <enter> to choose the word processor

Note The "Files in" list box lists only files whose extensions begin with W. If you want your macro files to be listed, give them some extension like WKY when you save them.

To save a macro file edited in Works

- Press <alt> to activate the Works menus
- From the File menu, choose the Save As command
- Type the name of the file in which to save the macro or accept the proposed filename
- Make sure that the Text option is selected under Format.
- Press <enter>
- Choose Yes to overwrite the existing macro file
- Press <alt> to activate the Works menus
- From the File menu, choose the Close command

After you've saved an edited macro file, use MS-Key's Open command to read the new macro definitions into memory.

To cancel your edits without saving

- Press <alt> to activate the Works menus
- From the File menu, choose the Close command
- If Works asks you to save any changes to the file before closing it, choose No.

Several commands from the Macro menu have shortcut keys that let you choose the commands with a single keystroke. When you first install MS-Key, the shortcut keys are:

Record	<alt = >
End	<alt->
Cancel	<ctrlesc>
Skip	<`>
Vfld	<ctrl->
Ffld	<ctrl]>
Nest	<alt = >

Changing the Shortcut Keys

All of the shortcut keys as well as the menu key, <alt/>, can be changed. For the menu key and each shortcut key, there is a command in the Options menu that let's you redefine the key. Opposite each command on the menu is the current shortcut key.

To change a shortcut key

- Press <alt/> and choose a command from the Options menu

MS-Key asks you to press the new shortcut key.

- Press the new shortcut key

After you change a shortcut key, the Options menu remains open so you can change other keys.

- When you are done changing keys, press <esc>

MS-Key asks you if you want to make the changes permanent.

- Press Y to save the new shortcut keys

If you answer Yes, MS-Key saves the changes. The next time you install MS-Key, it will use the new shortcut keys. If you answer No, MS-Key uses the new shortcut keys but doesn't save them. If you turn your computer off, they are forgotten. If you answer No but change your mind later on, you can use the Keep command to save the new shortcut keys.

- Press <alt/> and choose the Keep command from the Options menu

Note MS-Key saves the new shortcut keys in the MSKEY.COM program file. If MS-Key can't find MSKEY.COM, it asks you to type the name of the drive or directory containing the file. For example, if your computer has floppy disk drives, insert your DOS disk with MSKEY.COM in the A drive, then type A: and press <enter>.

Chapter 7: MS-Key Command Summary

This chapter lists all the commands in the MS-Key's menus and gives a summary of each.

MS-Key Main Menus

Macro
Record
Edit
Delete
Skip
Title

File
Open
Save
Merge
Clear
List
Quit

Options	
Menu	alt/
Record	alt =
End	alt-
Cancel	ctrlesc
Skip	`
Vfld	ctrl-
Ffld	ctrl]
Active	on
Keep	

MS-Key Editing Menus

Macro
End
Cancel
Blank
Skip
Vfld
Ffld
Nest
Pause
Title

File
Open
Save
Merge
List

MS-Key Recording Menus

Macro
End
Cancel
Skip
Vfld
Ffld
Nest
Pause
Title

File
Open
Save
Merge
List

Macro Menu Commands

Note MS-Key is designed to be used with Works. You can not use macros when you are at the DOS prompt or in other programs besides Works. You can record and edit macros only when you are in Works.

Record Command

Shortcut key: <alt=>

The Record command begins interactive recording of a macro. When you choose Record, MS-Key asks you to press the key to which you want to assign the macro. When you press a key, the cursor changes shape and MS-Key starts recording everything you type. The keys you type are also passed on to Works.

The prompt line at the bottom of the screen tells you what key you are recording. The prompt line also displays an indicator to tell you what you are currently recording. The different indicators are:

TEXT	normal recording
VFLD	recording a variable field
FFLD	recording a fixed field
NEST	recording a nested macro
SKIP	skipping the next key pressed

During recording, pressing <alt/> activates MS-Key's recording menus so you can choose commands. Use the End command to stop recording and save the macro. You can stop recording without saving the macro using the Cancel command.

Edit Command

The Edit command lets you create and edit macros with MS-Key's editor. When you choose Edit, MS-Key asks you to press the key whose macro you want to edit. When you press a key, MS-Key displays the editing window. If the key already has a macro definition assigned to it, the definition is displayed in the window. When you edit rather than record a macro, the keys you type are not passed on to Works.

The prompt line at the bottom of the screen tells you what key you are editing.

During editing, pressing <alt/> activates MS-Key's editing menus so you can choose commands. Use the End command to stop editing and save the macro. You can stop editing without saving the macro using the Cancel command.

End Command

Shortcut key: <alt->

During the recording or editing of a macro, the End command stops recording or editing and saves the macro definition.

Cancel Command

Shortcut key: <ctrlesc>

During the recording or editing of a macro, the Cancel command stops recording or editing without saving the new macro definition. If you choose Cancel to stop editing, MS-Key asks you if it is OK to lose your edits.

To cancel a macro while you are playing it back, press the Cancel shortcut key, <ctrlesc>.

Delete Command

The Delete command erases the macro assigned to a key. When you choose Delete, MS-Key asks you to press the key whose macro you want to delete. When you press a key, it returns to its original meaning.

Blank Command

During editing, the Blank command erases the macro in the editing window so you can type a new definition. When you choose Blank, MS-Key asks you if it is OK to erase the current definition.

Skip Command

Shortcut key: <`>

When you press a key that has a macro assigned to it, MS-Key plays back the macro. If you want the key to have its original meaning instead, first choose the Skip command or press the Skip shortcut key, <`>. When you press <`>, the cursor changes shape to indicate that MS-Key is waiting for you to press a key.

When you are recording a macro, MS-Key records the Skip command in the definition as <skip>. For example, if you press <`><f5> during recording, MS-Key inserts <skip><f5> into the definition.

When you are editing a macro, pressing an editing key moves the cursor or deletes a keyname from the definition. If instead you want MS-Key to insert the name of the editing key into the definition, first press the <`> and then the editing key.

If during editing you want to insert the actual Skip command into a macro definition, press <` > twice. Pressing <` > once tells MS-Key to wait for the next keystrokes. When you press <` > again, MS-Key inserts the command <skip>. For example, suppose you want to insert <f1> into a macro so that <f1> has its original meaning rather than playing the macro assigned to it. If you press <` > twice and then <f1>, MS-Key inserts <skip><f1> into the definition.

Vfld Command

Shortcut key: <ctrl-\>

During recording and editing, the Vfld command inserts a variable field into a macro definition.

When you choose Vfld during recording, the cursor changes shape and MS-Key begins a variable field. As you type keys, they are passed on to Works. To indicate the end of the field, choose the Vfld command again or simply press <enter>.

When you choose Vfld during editing, MS-Key inserts the keyword <vfld> into the macro definition.

When you play back a macro with a variable field, the cursor changes shape and MS-Key pauses to let you fill in the field. As you type keys, the keys are passed on to Works. When you are finished typing, press <enter> and MS-Key continues with the rest of the macro.

Ffld Command

Shortcut key: <ctrl]>

During recording and editing, the Ffld command inserts a fixed field into a macro definition.

When you choose Ffld during recording, the cursor changes shape and MS-Key begins a fixed field. As you type keys, they are passed on to Works. The number of keys you type determines the length of the field. To indicate the end of the field, choose the Ffld command again.

When you choose Ffld during editing, MS-Key asks you to specify the length of the field. Type a number and press <enter>. In a macro definition, a fixed field appears as <ffld number>, where the number is the length of the field. For example a 3 key fixed field appears as <ffld 3>.

When you play back a macro with a fixed field, the cursor changes shape and MS-Key pauses to let you fill in the field. As you type, the keystrokes are passed on to Works. As soon as you've typed the specified number of keystrokes, MS-Key continues with the rest of the macro.

Nest Command

Shortcut key: <alt = >

Note The Nest command uses the same shortcut key as the Record command.

The Nest command inserts a nested macro definition into the macro you are recording or editing.

When you choose Nest during recording, MS-Key asks you to press the key to which you want to assign the nested macro. When you press a key, the cursor changes shape and MS-Key starts recording the nested macro. The keys you type are also passed on to Works. To indicate the end of the nested macro, choose the Nest command again or simply press <enter>.

When you choose Nest during editing, MS-Key asks you to press the key to which you want to assign the nested macro. When you press a key, MS-Key inserts <nest keyname> into the macro definition. For example, if you press <ctrla>, MS-Key inserts <nest ctrla> into the definition.

When you play back a macro with a nested macro inside it, the cursor changes shape and MS-Key pauses to let you define the nested macro. As you type, the keys are passed on to Works. MS-Key records the keys as the definition of the nested macro. When you are finished typing, press <**enter**> and MS-Key continues with the rest of the macro.

Pause Command

During recording or editing, the Pause command inserts a playback delay into a macro definition. When you choose Pause, MS-Key asks you to specify the length of the pause. You can specify any time from hours down to tenths of seconds. For example, type 1:30:00 for a delay of one and a half hours, 5:00 for a delay of five minutes, or 10 for a delay of 10 seconds.

When you play back a macro with a pause, MS-Key delays for the specified amount of time. When the time is up, MS-Key continues with the rest of the macro. To end a pause before the time is up, press any key.

In a macro definition, a pause appears as <pause time>, where the time is the length of the pause. For example a one and a half minute pause appears as <pause 1:30>.

If a macro seems to lose or skip over a certain key when you play it back, you may need to insert a short pause in the macro definition before that key.

Title Command

Use the Title command to give a descriptive name to a macro. The List command displays the titles of all macros. When you choose Title, MS-Key asks you to press the key to which you want to assign a title. When you press a key, MS-Key displays a box where you can type the title. Type the title and press <enter>. You can choose the Title command during recording or editing.

File Menu Commands

Open Command

The Open command reads a file of macros into memory, replacing any macros that are currently in memory. When you choose Open, MS-Key asks you to type the name of the file to open. Type the filename, or accept the proposed filename, and press <enter>.

Note MS-Key looks for the file in whichever drive or directory is current in Works. To open a file in a different drive or directory, type the drive or directory before the filename, for example C:\MACROS\SAMPLE.KEY.

During recording or editing, choosing Open inserts the Open command into the macro definition. In a macro definition, the Open command appears as <open filename>. When you play the macro back, MS-Key opens the specified macro file. This is useful if you frequently switch between different macro files.

For example, suppose you use one macro file with the Works word processor and another with the spreadsheet. You can define a macro in the word processing macro file that automatically opens the spreadsheet macro file, and vice versa. Whenever you switch tools in Works, you can play the macro to switch macro files.

Even though opening a file replaces the macros that are currently in memory, MS-Key finishes the macro it is playing before removing it.

You can use this feature to create "automatic" macros that run when you open a macro file. For example, you can have a macro that opens the file SAMPLE.KEY and then presses <f9>. When you run the macro, MS-Key opens SAMPLE.KEY and then runs the macro in SAMPLE.KEY that is assigned to <f9>.

Save Command

The Save command writes the macros that are in memory to a file on disk so that you can use them again later. When you choose Save, MS-Key asks you to type the name to use for the file. Type the filename, or accept the proposed filename, and press <enter>.

Note MS-Key saves the file in whichever drive or directory is current in Works. To save a file in a different drive or directory, type the drive or directory before the filename, for example C:\MACROS\SAMPLE.KEY.

During recording or editing, choosing Save inserts the Save command into the macro definition. When you play the macro back, MS-Key saves the specified macro file. In a macro definition, the Save command appears as <save filename>.

Merge Command

Like the Open command, the Merge command reads a file of macros into memory, but Merge doesn't replace the macros that are currently in memory. If the file you are reading has a macro assigned to a key that already has a macro assigned to it in memory, the macro in memory is replaced

During recording or editing, choosing Merge inserts the Merge command into the macro definition as <merge filename>.

Clear Command

The Clear command clears all macro definitions from memory. When you choose Clear, MS-Key asks you if it is OK to clear all the macros. The macros will be lost unless you've saved them with the Save command.

List Command

The List command displays a window listing all the macros in memory. The keys to which the macros are assigned are listed on the left. On the right, MS-Key displays the macro titles that you've created with the Title command. If you haven't given a macro a title, MS-Key displays the first few keys of the macro's definition to help you recognize it. If there are more macros than will fit in the window, press <dn>, <up>, <pgdn>, or <pgup> to see more. When you are done looking at the list, press <esc>.

The List command displays the list of macros during recording and editing as well. In order to have a macro display the list during play back, you must insert the keyword <list> into the macro definition. To do so, you must use MS-Key's editor and type <list> one character at a time.

Quit Command

Once you've installed MS-Key, it stays in memory until you either turn off your computer or choose the Quit command. Choosing Quit removes MS-Key and all macro definitions from memory. Make sure you've saved your macros with the Save command before you quit.

You can only quit from MS-Key when you are at the DOS prompt, not while you are in Works. You need never choose Quit unless you specifically want to get back the 50K of your computer's memory that MS-Key consumes.

Options Menu Commands

Menu, Record, End, Cancel, Skip, Vfld, Ffld Commands Keep Command

These commands let you change MS-Key's menu and shortcut keys. The Options menu shows the current shortcut keys opposite the commands. When you choose a command, MS-Key asks you to press the new shortcut key.

After you change a shortcut key, the Options menu remains open so you can change other keys if you wish. When you close the menu by pressing <esc>, MS-Key asks you if you want to make the changes permanent. If you answer yes, MS-Key saves the new shortcut keys so that you don't have to change them again each time you start MS-Key. If you answer no but change your mind later, you can use the Keep command to save the new shortcut keys.

Note MS-Key saves the new shortcut keys in the program file MSKEY.COM. If MS-Key can't find MSKEY.COM, it asks you to type the name of the drive or directory containing the file. For example, if your computer has floppy disk drives, insert your DOS disk with MSKEY.COM in the A drive, then type A: and press <enter>.

Active Command

The Active command suspends all macro definitions. When you choose Active, you turn MS-Key "off". All keys have their original meanings except <alt/>, which still displays the MS-Key menus. Unlike the Skip key, which applies only to the next key pressed, the Active command applies to all keys until you turn MS-Key back on. To use macros again, choose the Active command again.

Installing MS-Key

The MS-Key program is contained in the file MSKEY.COM on the Works Setup/Utilities disk. Before you can use MS-Key, you must copy MSKEY.COM to the appropriate disk. Then, to use MS-Key, you install it in memory by running the MSKEY.COM program. You must install MS-Key **before** you start Works.

How you install MS-Key depends on how much memory your computer has, whether it has a hard disk drive, and how often you want to use MS-Key with Works.

Copying MS-Key

If your computer has only floppy disk drives, you should copy MSKEY.COM to your DOS disk, the disk containing the operating system. If you have a hard disk drive, your "DOS disk" is the C:\ directory on your hard disk. You copy MS-Key to your DOS disk as described in "Installing MS-Key" in Chapter 1, "Introduction to Macros."

If you have a hard disk drive, you might want to copy MSKEY.COM to the Works program directory instead of the C:\ directory. The Works program directory is the one you specified when you copied Works to your hard disk with the Setup program. It is probably named C:\WORKS. To copy MSKEY.COM to the Works program directory, use the DOS COPY command rather than the Setup program.

When to Install MS-Key

MS-Key is designed to be used with Works. You can open macro files and play macros when you are at the DOS prompt or in other programs besides Works, but you can record and edit macros only when you are in Works. Even if you are going to use a particular macro only when you are at the DOS prompt, you can create the macro only when you are in Works.

Though MS-Key is most useful when you are in Works, it takes up 50K of your computer's memory the entire time it is installed, whether you are in Works, at the DOS prompt, or in another program.

If you use MS-Key frequently or if your computer has lots of memory, you might want to install MS-Key every time you use your computer. You can install MS-Key automatically when you start your computer by adding the command "mskey.com" to your AUTOEXEC.BAT file. (See your DOS manual for more information on the AUTOEXEC.BAT file.)

If your computer doesn't have much memory, you may not want to spare 50K except when you really need to use MS-Key. In that case you should install MS-Key only when you need it, for example before you start Works.

Removing MS-Key from Memory

Once you've installed MS-Key, it stays in memory until you either turn off your computer or choose the Quit command. Choosing Quit removes MS-Key and all macro definitions from memory. Make sure you've saved your macros with the Save command before you quit.

You can only quit from MS-Key when you are at the DOS prompt, not while you are in Works. You need never choose Quit unless you specifically want to get back the 50K of memory.

Using More Memory for More Macros

When you install MS-Key, it reserves 4K of memory for macro definitions. If your macro files contain many large macros, you may want to increase the amount of memory MS-Key uses. To reserve more memory when you install MS-Key, type

mskey /[heap number]

For example, to reserve 16K of memory, type

mskey /[heap 16]

If you want to reserve more memory every time you install MS-Key, you can write a DOS batch file to do it automatically. For example, if you put the command above in a batch file called MYKEY.BAT, typing mykey will install MS-Key with 16K of memory for macro definitions.

Choosing File Commands from Batch Files

When you install MS-Key in memory by typing mskey at the DOS prompt, you can also choose commands from the MS-Key File menu, using "command line arguments." Command line arguments are commands you type after the name of the program, mskey.

For example, you can install MS-Key and at the same time open the macro file COMMON.KEY by typing:

```
mskey /[open common.key]
```

You can choose any File command this way, even after you've already installed MS-Key. For example, after you've installed MS-Key, you can clear all the macros from memory by typing the following at the DOS prompt:

```
mskey /[clear]
```

Of course once you've installed MS-Key you can choose File commands just as easily by pressing <alt/> and choosing them in the normal manner. So when would you ever use command line arguments?

Commands line arguments are used to automatically choose commands in batch files. For example, suppose that whenever you used MS-Key, you always used the macros in the macro file COMMON.KEY in the C:\WORKS directory. You could write a batch file called MYKEY.BAT containing the command:

```
mskey /[open c:\works\common.key]
```

Then, instead of installing MS-Key by typing mskey, you would type mykey.

The different command line arguments are:

```
/[open filename]
/[save filename]
/[merge filename]
/[clear]
/[quit]
```

For more information on batch files, see your DOS manual.

This chapter lists all the keynames to which you can assign macros and all the keynames and keywords that can appear in a macro definition.

Keywords

Macro definitions consist primarily of keynames like the letter A or the character =, or like <enter> and <tab>. Macros can also contain "keywords" corresponding to different MS-Key commands. For example, if you choose the Vfld command during recording or editing, MS-Key inserts the keyword <vfld> in the macro definition.

In addition to these keywords, there is a <works> keyword for the action of pressing and releasing the <alt> key while choosing Works commands. You can choose Works commands in several different ways. For example, to choose the Open command from the File menu, you might:

- Press and release <**alt**> and then type **fo**

or

- Press <**altf**><**alto**>

If you were recording your actions, MS-Key would record <works>fo in the first case and <altf><alto> in the second. You can use either of these in a macro definition.

The keywords that appear in macro definitions are:

<open filename>
<save filename>
<merge filename>
<nest keyname>
<skip>
<ffld number>
<vfld>
<pause time>
<list>
<works>

Note When you choose the List command during recording or editing, MS-Key displays the list of macros but does not insert the command into the macro. To insert the List command you must use MS-Key's editor and type <list> one character at a time.

Keynames

In a macro definition, MS-Key represents each keystroke or shifted key combination with a unique "keyname". For some keys, the keyname is a single character. For example, the keyname for pressing the A key on the keyboard is the lower-case character a. The keyname for holding down the Shift key and pressing the A key, is the upper-case character A. Keys without single character representations have multiple character keynames enclosed in brackets. For example, the keynames for the Enter and Backspace keys are <enter> and <bks>.

For some shifted key combinations, the keyname is a combination of the name of the shift key and the name of another key, again enclosed in brackets. For example, the keyname for holding down the Alt key and pressing the / key is <alt/>. The keyname for holding down the Control key and pressing Escape is <ctrlesc>.

Any of these keys that you can assign macros to can also be used in a macro definition.

Note The keyboards on some new computers may have keynames not listed below. For example, some keyboards have an Insert key, <insert>, in addition to the normal Ins key, <ins>. You can always tell exactly what the keyname of a key is by going into the MS-Key editor and pressing the key (or pressing <`> followed by the key).

a	A	<alta>	<ctrla>
b	B	<altb>	<ctrlb>
c	C	<altc>	<ctrlc>
d	D	<altd>	<ctrld>
e	E	<alte>	<ctrle>
f	F	<altf>	<ctrlf>
g	G	<altg>	<ctrlg>
h	H	<alth>	<ctrlh>
i	I	<alti>	<ctrli>
j	J	<altj>	<ctrlj>
k	K	<altk>	<ctrll>
l	L	<altl>	<ctrlk>
m	M	<altm>	<ctrlm>
n	N	<altn>	<ctrln>
o	O	<alto>	<ctrlo>
p	P	<altp>	<ctrlp>
q	Q	<altq>	<ctrlq>
r	R	<altr>	<ctrlr>
s	S	<alts>	<ctrls>
t	T	<altt>	<ctrlt>
u	U	<altu>	<ctrlu>
v	V	<altv>	<ctrlv>

w	W	<altw>	<ctrlw>
x	X	<altx>	<ctrlx>
y	Y	<alty>	<ctrly>
z	Z	<altz>	<ctrlz>
1	!	<alt1>	<ctrl1>
2	@	<alt2>	<ctrl2>
3	#	<alt3>	<ctrl3>
4	$	<alt4>	<ctrl4>
5	%	<alt5>	<ctrl5>
6	^	<alt6>	<ctrl6>
7	&	<alt7>	<ctrl7>
8	*	<alt8>	<ctrl8>
9	(	<alt9>	<ctrl9>
0	)	<alt0>	<ctrl0>
space		<altspace>	<ctrlspace> <ctrlcapsspace>
-	—	<alt->	<ctrl-> <ctrlcaps->
=	+	<alt=>	<ctrl=> <ctrlcaps=>
[	{	<alt[>	<ctrl[>
]	}	<alt]>	<ctrl]>
;	:	<alt;>	<ctrl;> <ctrlcaps;>
‘	“	<alt’>	<ctrl’>
\		<alt\>	<ctrl\>
,	<	<alt,>	<ctrl,>
.	>	<alt.>	<ctrl.>
/	?	<alt/>	<ctrl/>
<esc>	<esc>	<altesc>	
<tab>	<capstab>	<alttab>	<ctrltab>
<bks>	<bks>	<altbks>	<ctrlbks>
<enter>	<capsenter>	<altenter>	<ctrlenter>
<k*>		<altk*>	<ctrlprt>
<f1>	<capsf1>	<altf1>	<ctrlf1>
<f2>	<capsf2>	<altf2>	<ctrlf2>
<f3>	<capsf3>	<altf3>	<ctrlf3>
<f4>	<capsf4>	<altf4>	<ctrlf4>
<f5>	<capsf5>	<altf5>	<ctrlf5>
<f6>	<capsf6>	<altf6>	<ctrlf6>
<f7>	<capsf7>	<altf7>	<ctrlf7>
<f8>	<capsf8>	<altf8>	<ctrlf8>

			<ctrlcapsf8>
<f9>	<capsf9>	<altf9>	<ctrlf9>
<f10>	<capsf10>	<altf10>	<ctrlf10>
<f11>	<capsf11>	<altf11>	<ctrlf11>
<f12>	<capsf12>	<altf12>	<ctrlf12>
<home>	<k7>		<ctrlhome>
<up>	<k8>		<ctrlup>
<pgup>	<k9>		<ctrlpgup>
<rgt>	<k6>		<ctrlrgt>
<ctr>	<k5>		<ctrlctr>
<lft>	<k4>		<ctrllft>
<end>	<k1>		<ctrlend>
<dn>	<k2>		<ctrldn>
<pgdn>	<k3>		<ctrlpgdn>
<ins>	<k0>		<ctrlins>
<del>	<k.>	<altdel>	<ctrldel>
<k->	<capsk->	<altk->	<ctrlk->
<k+>	<capsk+>	<altk+>	<ctrlk+>

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